

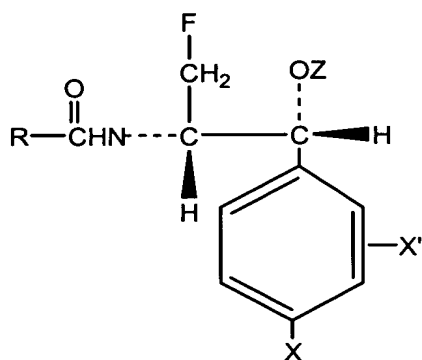
WE CLAIM:

1. A composition for the treatment of microbial and parasitic infection in an
5 animal comprising

a) a compound selected from the group consisting of

a compound of Formula I:

FORMULA I



10 wherein R is a member selected from the group consisting of methyl or ethyl or a
halogenated derivative thereof, dihalogenodeuteriomethyl, 1-halogeno-1-
deuterioethyl, 1,2-dihalogeno-1-deuterioethyl, azidomethyl and
methylsulfonylmethyl;

each of X and X' is a member independently selected from the group
15 consisting of NO₂, SO₂R₁, SOR₁, SR₁, SONH₂, SO₂NH₂, SONHR₁, SO₂NHR₁,
COR₁, OR₁, R₁, CN, halogen, hydrogen, phenyl, and phenyl substituted by

halogen, NO₂, R₁, PO₂R₁, CONHR₁, NHR₁, NR₁R₂, CONR₁R₂, OCOR₁, or OR₁, wherein each of R₁ and R₂ is a member independently selected from the group consisting of methyl, ethyl, n-propyl, isopropyl butyl, t-butyl, isobutyl and phenyl;

and Z is hydrogen or an acyl group of a hydrocarboncarboxylic acid having up to 16 carbon atoms or an acyl group of an aminohydrocarboncarboxylic acid having up to 12 carbon atoms; and the pharmaceutically acceptable salts of said acyl groups;

b) an endectocidic compound possessing antiparasitic activity; and

c) at least one carrier.

2. The composition of Claim 1, wherein R is a halogenated derivative of methyl or ethyl.

3. The composition of Claim 2, wherein R is CHCl₂ or CHF₂.

4. The composition of Claim 3, wherein Z is hydrogen, X is SO₂R₁ or phenyl, and X' is hydrogen.

5. The composition of Claim 4, wherein R₁ is methyl.

6. The composition of Claim 1, wherein the compound of Formula I is Florfenicol and the Florfenicol is present in an amount of about 10% w/v to about 50% w/v.

7. The composition of Claim 1, wherein the endectocidic compound is an avermectin, and wherein the avermectin is a compound selected from the group

consisting of Ivermectin, Doramectin, Abamectin, Selamectin, Enamectin, Eprinomectin, Moxidectin and Milbemycin.

8. The composition of Claim 7, wherein the avermectin compound is present in an amount of about 0.03% w/v to about 20% w/v.

5 9. The composition of Claim 7, wherein the avermectin compound is Ivermectin.

10. The composition of Claim 1, wherein the at least one carrier is a solvent.

11. The composition of Claim 10, wherein the solvent is present in an amount of about 15% w/v to about 80% w/v.

10 12. The composition of Claim 10, wherein the solvent is selected from the group consisting of a pyrrolidone solvent, N,N-dimethylacetamide, N,N-dimethylformamide, DMSO, acetone, glycerol formal and combinations thereof.

13. The composition of Claim 12, wherein the solvent is a pyrrolidone solvent selected from the group consisting of N-methyl-2-pyrrolidone, 2-pyrrolidone and
15 combinations thereof.

14. The composition of Claim 10 further comprising a second solvent.

15. The composition of Claim 14, wherein the second solvent is selected from the group consisting of water, propylene glycol, polyethylene glycol, triacetin, dimethyl-isosorbide, ethanol, isopropanol, glycerin, 1,2-propanediol, glycol ethers,
20 benzyl alcohol and combinations thereof.

17. A composition for the treatment of a microbial and parasitic infection in an animal comprising:

a) a macrolide antibiotic selected from the group consisting of Tilmicosin and Tulathromycin;

5 b) an endectocidic compound possessing antiparasitic activity; and

c) at least one carrier.

18. The composition of Claim 17, wherein the endectocidic compound is an avermectin, and wherein the avermectin is a compound selected from the group consisting of Ivermectin, Doramectin, Abamectin, Selamectin, Emamectin,

10 Eprinomectin, Moxidectin and Milbemycin.

19. The composition of Claim 18, wherein the avermectin compound is present in an amount of about 0.03% w/v to about 20% w/v.

20. The composition of Claim 17, wherein the at least one carrier is a solvent.

21. The composition of Claim 20, wherein the solvent is present in an amount of

15 about 15% w/v to about 80% w/v.

22. The composition of Claim 21, wherein the solvent is selected from the group consisting of a pyrrolidone solvent, N,N-dimethylacetamide, N,N-

dimethylformamide, DMSO, acetone, glycerol formal water, propylene glycol,

polyethylene glycol, triacetin, dimethyl-isosorbide, ethanol, isopropanol, glycerin,

20 1,2-propanediol, glycol ethers, monothioglycerol, benzyl alcohol and combinations thereof.

23. The composition of Claim 17 further comprising a fluckicide.

24. A composition for the treatment of a microbial and parasitic infection in an animal comprising:

a) a cephalosporin selected from the group consisting of Ceftiofur or Cefquinome;

5 b) an endectocidic compound possessing antiparasitic activity; and

c) at least one carrier.

25. The composition of Claim 24, wherein the endectocidic compound is an avermectin, and wherein the avermectin is a compound selected from the group consisting of Ivermectin, Doramectin, Abamectin, Selamectin, Emamectin,

10 Eprinomectin, Moxidectin and Milbemycin.

26. The composition of Claim 25, wherein the avermectin compound is present in an amount of about 0.03% w/v to about 20% w/v.

27. The composition of Claim 24, wherein the at least one carrier is a solvent, and wherein the solvent is selected from the group consisting of a pyrrolidone

15 solvent, N,N-dimethylacetamide, N,N-dimethylformamide, DMSO, acetone, glycerol formal water, propylene glycol, polyethylene glycol, triacetin, dimethyl-isosorbide, ethanol, isopropanol, glycerin, 1,2-propanediol, glycol ethers, monothioglycerol, benzyl alcohol and combinations thereof.

28. The composition of Claim 27, wherein the solvent is present in an amount of
20 about 15% w/v to about 80% w/v.

29. The composition of Claim 24 further comprising a fluckicide.

30. A composition for the treatment of a microbial and parasitic infection in an animal comprising:

a) a fluoroquinolone antibiotic selected from the group consisting of Enrofloxacin,

5 Danofloxacin and Marbofloxacin;

b) an endectocidic compound possessing antiparasitic activity; and

c) at least one carrier.

31. The composition of Claim 30, wherein the endectocidic compound is an avermectin, and wherein the avermectin is a compound selected from the group

10 consisting of Ivermectin, Doramectin, Abamectin, Selamectin, Enamectin, Eprinomectin, Moxidectin and Milbemycin.

32. The composition of Claim 31, wherein the avermectin compound is present in an amount of about 0.03% w/v to about 20% w/v.

33. The composition of Claim 30, wherein the at least one carrier is a solvent,

15 and wherein the solvent is selected from the group consisting of a pyrrolidone solvent, N,N-dimethylacetamide, N,N-dimethylformamide, DMSO, acetone, glycerol formal water, propylene glycol, polyethylene glycol, triacetin, dimethyl-isosorbide, ethanol, isopropanol, glycerin, 1,2-propanediol, glycol ethers, monothioglycerol, benzyl alcohol and combinations thereof.

20 34. The composition of Claim 33, wherein the solvent is present in an amount of about 15% w/v to about 80% w/v.

35. The composition of Claim 30 further comprising a fluckicide.

36. A method of treating bovine respiratory disease and a parasitic infection in an animal comprising the step of subcutaneously administering to an animal in need of such treatment a therapeutically effective amount of the composition of Claim 1.

37. A method of treating bovine respiratory disease and a parasitic infection in an animal comprising the step of subcutaneously administering to an animal in need of such treatment a therapeutically effective amount of the composition of Claim 17.

38. A method of treating bovine respiratory disease and a parasitic infection in an animal comprising the step of subcutaneously administering to an animal in need of such treatment a therapeutically effective amount of the composition of Claim 24.

39. A method of treating bovine respiratory disease and a parasitic infection in an animal comprising the step of subcutaneously administering to an animal in need of such treatment a therapeutically effective amount of the composition of Claim 30.